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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/025,128	12/19/2001	Quinn J. Haddock	3123-397	5809

25231 7590 06/03/2004

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EXAMINER

MILLER, BRIAN E

ART UNIT	PAPER NUMBER
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2652

DATE MAILED: 06/03/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/025,128

Applicant(s)

HADDOCK ET AL.

Examiner

Brian E. Miller

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 15 March 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-39 and 48-55 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-39 and 48-55 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 4.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

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Claims 1-39, 48-55 are now pending.

Election/Restrictions

1. Applicant's election without traverse of Group I, claims 1-39 in Paper No. 6 is acknowledged. It has been noted that claims 40-47, drawn to Group II, have been canceled. New claims 48-55 appear to read on Group I, therefore these claims will be examined with the Group I claims.

Drawings

2. The drawings are objected to because FIGs. 2, 3, 4, 5A, 5B, 6 & 7 are informal. All of the noted figures include informal text and/or reference numerals and are otherwise not particularly drawn (specifically FIG. 7). Corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 30-35 are objected to because of the following informalities: reference to "a second air bearing pad" has been made in multiple claims and each refers to a different pad on the slider. The first instance is considered ok, however, using the same term to distinguish other pads that are in different locations is confusing. It is requested to modify the third and fourth recitations in the claims to avoid such confusion. Appropriate correction is required.

Claim Rejections - 35 USC § 112

4. Claims 12-14, 27-29, 53-55 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains,

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or with which it is most nearly connected, to make and/or use the invention. The phrases in the above mentioned claims, i.e., “means for generating” (claims 12, 27, 53), “means for concentrating a pressure” (claims 13, 28, 54) and “means for creating a pressure” (claims 14, 29, 55) are not described sufficiently in the disclosure to allow one of ordinary skill to make and or use the invention. It is unclear as to what specific structure encompasses the above means plus function recitations. Until this has been specifically set forth, an art determination cannot be made.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-5, 7-9, 15-24, 30-31, 48-51 are rejected under 35 U.S.C. 102(e) as being anticipated by Kohira et al (US 6,556,381). (As per claim 1) Kohira et al discloses a slider 1 for a disk drive, as shown primarily in FIGs. 1-2 & 16, including: a slider body 1 that extends along a first reference axis “A” that defines a longitudinal extent of the slider body which includes upper (unnumbered) and lower 4 surfaces, wherein the lower surface 4 projects toward a storage medium of the disk drive when the slider is installed therein (see FIG. 3); a leading edge 2 and a trailing edge 3 longitudinally spaced from the leading edge relative to the first reference axis “A”, wherein the storage medium moves relative to the slider when incorporated in the disk drive

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in a direction that is at least generally from the leading edge to the trailing edge (as known in the art); first and second sides (unnumbered though depicted in the FIGs.) that are laterally spaced relative to the first reference axis "A"; the lower surface of the slider body further including a first air bearing pad 5a; a first air pressurizing step d1+d2 (adjacent pad 7a) associated with the first air bearing pad and that is disposed immediately in front of the first air bearing pad in the direction of the leading edge 2; wherein an area bounded by the leading edge, trailing edge, first side and the second side is of a first magnitude, e.g., $1\text{mm} \times 1.25\text{mm} = 1.25\text{mm}^2$ (col. 4, line 15), a surface area of the first air bearing pad is of a second magnitude, e.g., 1000nm^2 (col. 10, line 35), such that a ratio of the second magnitude to the first magnitude is no more than about 0.004, e.g., $1000\text{nm}^2/1.25\text{mm}^2 = 0.0008$, which ratio meets the claimed ratio; wherein a transducer 9 is disposed within the first air bearing pad; (as per claims 2, 17) wherein it is considered at least part of the first air bearing pad 5a is disposed within about 0.002 in ($0.051\text{mm}=50,800\text{nm}$) of the trailing edge, e.g., the pad is right on the edge (see FIG. 2 which should be around the thickness of d1 is deep, i.e., 10-50nm); (as per claims 3, 18) wherein the first air bearing pad is centrally disposed on the first reference axis "A"; (as per claims 4, 19, 48) wherein the first air bearing pad has a surface area of no more than about $0.00001\text{in}^2=0.00645\text{mm}^2$ which is much bigger than 1000nm^2 the max that Kohira et al discloses (see col. 10, line 35); (as per claims 5, 20, 49) wherein the depth of the first pressurizing step (d1+d2) is within a range of about 0.5microinches to about 3microinches, i.e., 12.7nm-76.2nm, e.g., d1 is about 10-50nm, while d2 is about 50-200, so it follows that d1+d2 is about 60-250nm (see col. 9, lines 25-45) which would fall into the aforementioned range; (as per claims 7, 22, 50) Kohira et al further includes a second air bearing pad 7a in which the first air bearing pad is disposed on and protrudes from the second air bearing

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pad; a second pressurizing step d2 and/or d3 associated with the second air bearing pad that is disposed immediately in front of the second air bearing pad in the direction of the leading edge (as shown in FIG. 2); (as per claims 8-9, 23-24, 51) wherein the depth of the second pressurizing step d3 is different (and greater) from the depth of the first pressurizing step.

With respect to claims 15 & 16, similar to claim 1 (see description, supra), however, in addition, Kohira et al further shows a negative pressure cavity 8 including a cavity base which is recessed in relation to the first air bearing pad; a transducer 9 disposed within the first air bearing pad 5a, wherein a size of the first air bearing pad is "selected such that at least a portion of the air bearing pad expands during read/write operations using the transducer" in so far as this limitation is directed to the slider per se as the claim is directed to (see preamble) and is not only an intended use recitation; (as per claim 30) wherein the lower surface further includes a second air bearing pad 6b (or 6c) disposed toward the leading edge and a second pressurizing step 7b (the portion in front of the pad 6b or 6c which is associated with the second air bearing pad that is disposed immediately in front of the second air bearing pad in the direction of the leading edge; (as per claim 31) wherein the second air bearing pad is disposed within about 0.020=0.5mm in of the leading edge (see FIG. 1).

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

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8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 6, 10-11, 25-26, 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohira et al (6,556,381). For a full description of Kohira et al, see the rejection, supra. In the above claims, claims 6, 11 & 26 require a depth of the first pressurizing step to be "about 1.5 microinches"; and claims 10, 11, 25-26 & 52 require a depth of the second pressurizing step to be within the range of "about 3 microinches to about 8 microinches", which dimensions are not disclosed by Kohira et al. It is considered, however, that lacking any criticality and/or any unobvious or unexpected results, that it would have been obvious to a skilled artisan to have modified the dimensions in Kohira et al to have arrived at the claimed dimensions. The motivation would have been: absent a showing of criticality, i.e., unobvious or unexpected results, the relationships set forth in these claims would have resulted through the course of routine engineering optimization/experimentation.

Additionally, the law is replete with cases in which the mere difference between the claimed invention and the prior art is some range, variable or other dimensional limitation within the claims, patentability cannot be found.

It furthermore has been held in such a situation, the applicant must show that the particular range is critical, generally by showing that the claimed range achieves unexpected results relative to the prior art range(s); see *In re Woodruff*, 919 F.2d 1575, 1578, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990).

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Moreover, the instant disclosure does not set forth evidence ascribing unexpected results due to the claimed dimensions; see *Gardner v. TEC Systems, Inc.*, 725 F.2d 1338 (Fed. Cir. 1984), which held that the dimensional limitations failed to point out a feature which performed and operated any differently from the prior art.

Claims 32-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kohira et al in view of Applicants' admitted prior art (AAPA) (FIG. 7 and pg. 25, line 18 thru pg. 26, line 7). Kohira et al remains silent to laterally disposed (with respect to the centrally disposed first air bearing pad) second and third air bearing pads with associated pressurization steps, however, the AAPA (FIG. 7), discloses a slider with a first centrally located pad 177a with a magnetic head 182 thereon, a step 178d (depth of 5 microinches) and second and third laterally positioned air bearing pads 176b, 176c with respective pressurization steps 178b, 178c, respectively (also of 5 microinches in depth-see specification). From this teaching, it would have been obvious to one having ordinary skill in the art at the time the invention was made to have provided the two laterally disposed air bearing pads with appropriate pressurization steps to the slider of Kohira et al. The motivation would have been: adding laterally disposed pads would have provided a more stable flying slider, e.g., reducing pitch and roll effects, and further would provide additional pressure to pull the magnetic head closer to the disk, which advantages would have been readily apparent to a skilled artisan.


Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Brian E. Miller whose telephone number is (703) 308-2850. The examiner can normally be reached on M-TH 7:15am-4:45pm (and every other friday).

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hoa T. Nguyen can be reached on (703) 305-9687. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

A handwritten signature in black ink, appearing to read "B. Miller", is positioned above the printed name and title.

Brian E. Miller
Primary Examiner
Art Unit 2652

Bem
May 28, 2004